Land aerosol retrieval with the Directional Polarimetric Camera aboard GF-5

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The DPC (Directional Polarimetric Camera) is a multi-angle polarimeter instrument used for operational aerosol monitoring; it was launched onboard the Chinese GaoFen-5 (GF-5) satellite in May 2018. Compared with POLDER (Polarization and Directionality of Earth's Reflectance) which ended its mission in December 2013, the DPC has similar band design, with a maximum of 12 imaging angles and a relatively higher spatial resolution of 3.3 km. The global aerosol optical depth (AOD) over land from October to December in 2018 has been retrieved with multi-angle polarization observations of the DPC. Comparisons with MODIS (Moderate Resolution Imaging Spectroradiometer) AOD products show good agreement. AERONET (Aerosol Robotic Network) measurements at three Asian sites were used to evaluate the accuracy of DPC AOD retrievals. Validation against AERONET data indicates better performance of the DPC AOD than PARASOL in urban areas. It may be attributed to the higher spatial resolution of the DPC, which enables the surface polarization model to better characterize the polarized reflectance of urban land surfaces.

References

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Preferred mode of presentation: Oral